SONY®

VIDEO CASSETTE RECORDER

SL-HFR70

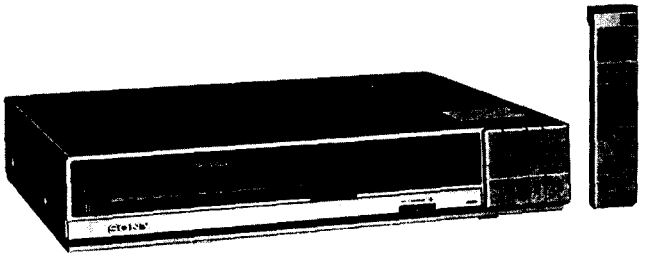
OPERATING INSTRUCTIONS

Before operating the unit, please read this manual thoroughly, and retain it for future reference.

OWNER'S RECORD

The model and serial number of your set are located at the rear. Record the serial number in the space provided below. Refer to these numbers whenever you call upon your Sony dealer regarding this product.

Model No. SL-HFR70 Serial No. 817819



Super Betamax®

This unit can be used with any video cassette tapes having the mark ß .
It is compatible with the ßII and ßIII type recording and playback formats, and will play back tapes recorded in the ßI format.

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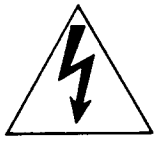
WARNING

To prevent fire or shock hazard, do not expose the unit to rain or moisture.

CAUTION
RISK OF ELECTRIC SHOCK
DO NOT OPEN
CAUTION: TO REDUCE THE RISK OF ELECTRIC SHOCK,
DO NOT REMOVE COVER (OR BACK).
NO USER-SERVICEABLE PARTS INSIDE.
REFER SERVICING TO QUALIFIED SERVICE PERSONNEL



This symbol is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.

This symbol is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

INFORMATION

This equipment generates and uses radio frequency energy and if not installed and used properly, that is, in strict accordance with the manufacturer's instructions, may cause interference to radio and television reception. It has been type tested and found to comply with the limits for a Class B computing device in accordance with the specifications in Subpart J of Part 15 of FCC Rules, which are designed to provide reasonable protection against such interference in a residential installation. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

Reorient the receiving antenna
Relocate the equipment with respect to the receiver
Move the equipment away from the receiver
Plug the equipment into a different outlet so that equipment and receiver are on different branch circuits.

If necessary, the user should consult the dealer or an experienced radio/television technician for additional suggestions. The user may find the following booklet prepared by the Federal Communications Commission helpful:

How to Identify and Resolve Radio-TV Interference Problems". This booklet is available from the U.S. Government Printing Office, Washington, DC 20402, Stock No. 004-000-00345-4.

CAUTION:

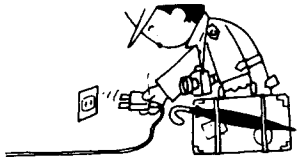
TO PREVENT ELECTRIC SHOCK, DO NOT USE THIS POLARIZED AC PLUG WITH AN EXTENSION CORD, RECEPTACLE OR OTHER OUTLET UNLESS THE BLADES CAN BE FULLY INSERTED TO PREVENT BLADE EXPOSURE.

The photos used in this manual are of the silver type.

PRECAUTIONS

On safety

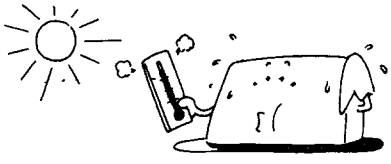
- This unit operates only on 120 V ac, 60 Hz.
- Should any solid object or liquid fall into the cabinet, unplug the unit and have it checked by qualified personnel before operating it any further.
- This unit is equipped with a polarized ac power cord plug (one blade of the plug is wider than the other), which will fit into the power outlet only one way. Should you be unable to insert the plug fully into the outlet, try reversing the plug. If the plug still fails to fit, contact your dealer for assistance. Do not defeat the safety purpose of the polarized plug.
- Unplug the unit from the wall outlet if it is not to be used for an extended period of time. To disconnect the cord, pull it out by the plug. Never pull the cord itself.



On installation

- Allow adequate air circulation to prevent internal heat build-up. Do not place the unit on surfaces (rugs, blankets, etc.) or near materials (curtains, draperies) that may block the ventilation slots.

- Do not install the unit near heat sources such as radiators or air ducts or in a place subject to direct sunlight, excessive dust, mechanical vibration or shock.



- The unit is designed for operation in a horizontal position. Do not install it in an inclined position.
- Keep the unit and cassette tapes away from equipment with strong magnets, as for example a microwave oven or a large loudspeaker.
- Do not place any heavy object on the unit.

On operation

- When the unit is not in use, turn the power off to conserve energy and to extend its useful life.
- Remove and store video cassettes after recording or playback.
- Store the cassettes in their cases and keep them in an upright position to prevent intrusion of dust and uneven winding.

On cleaning

Clean the cabinet, panel and controls with a dry soft cloth, or a soft cloth lightly moistened with a mild detergent solution.
Do not use any type of solvent, such as alcohol or benzine, which might damage the finish.

On repacking

Do not throw away the carton and packing materials. They make an ideal container in which to transport the unit. When shipping the unit to another location, repack it as illustrated on the carton.

If you have any questions about this unit, contact your Sony service facility.

CONNECTIONS

Before making connections

- Turn off the TV.
- Connect the ac power cord after all the connections of the video cassette recorder and the TV have been completed.
- Make connections firmly. A loose connection may cause a distorted picture.

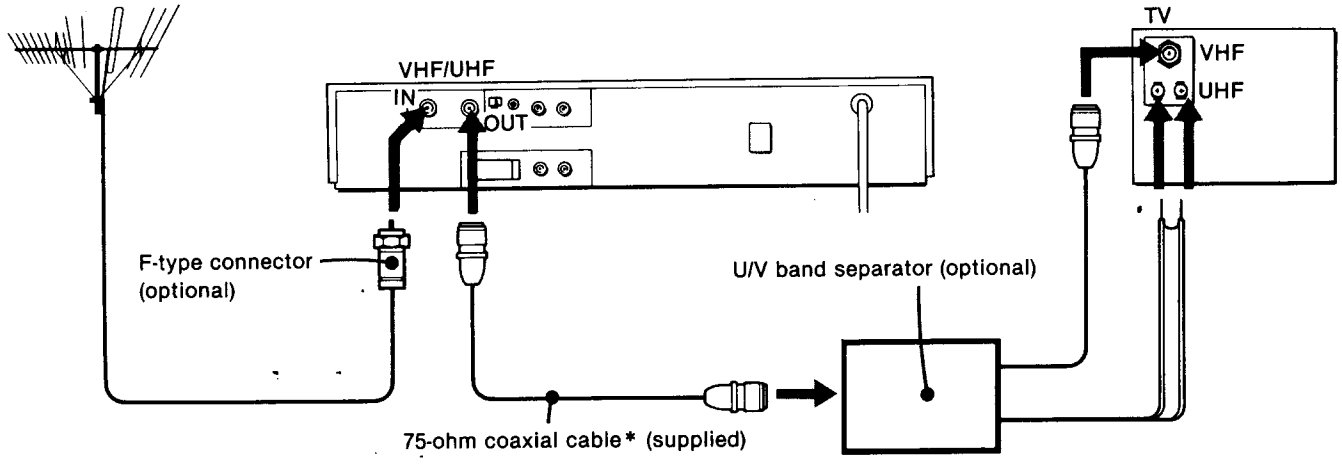
ANTENNA/CABLE AND TV CONNECTION

Disconnect the TV antenna cables from the TV receiver and connect them to the recorder, then connect the recorder and the TV.

Combination VHF/UHF antenna

Most combination antennas are equipped with a U/V band separator (signal splitter). Take off the separator and connect the cable directly to the recorder.

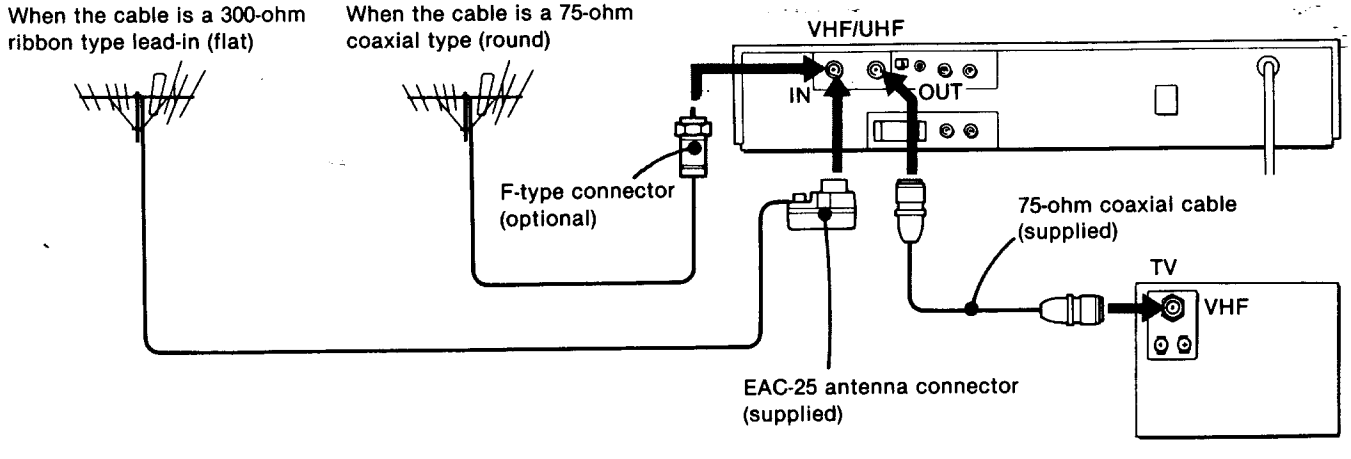
Use the removed separator to connect the recorder and the TV.



*Use an optional RFC-8 extension cable, 8 m (25 ft) long, if the supplied 75-ohm coaxial cable is not long enough.

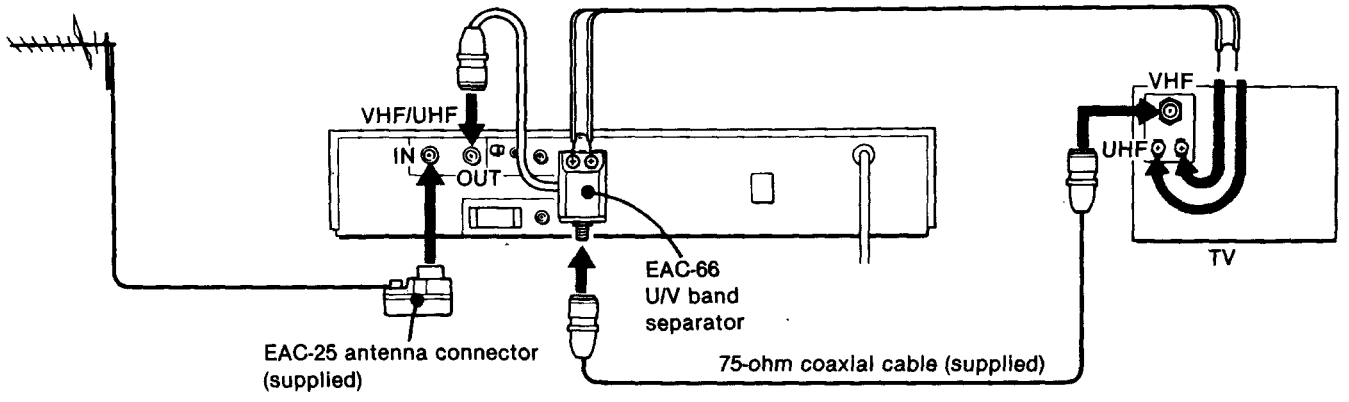
If you need a separator or a complete antenna system, see your Sony dealer or a qualified technician.

VHF antenna



UHF antenna

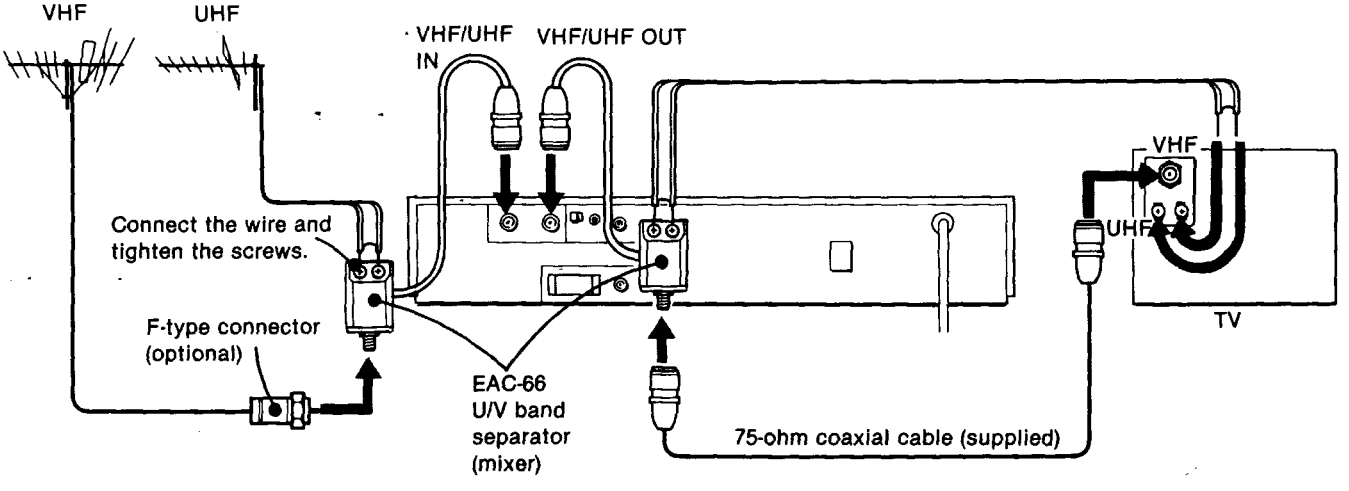
Attach an optional EAC-66 U/V band separator to the VHF/UHF OUT connector of the recorder, and connect to the VHF and UHF antenna terminals of the TV.



When both VHF and UHF antennas are connected

Attach an optional EAC-66 U/V band separator (mixer) to the VHF/UHF IN connector of the recorder, and connect the antennas to the U/V band separator.
Then attach another optional U/V band separator to the VHF/UHF OUT connector of the recorder, and connect to the VHF and UHF antenna terminals of the TV.

When a TV has a 75-ohm UHF/VHF antenna terminal
Easy connection of the recorder to the TV can be made with a supplied 75-ohm coaxial cable regardless of the types of antenna.

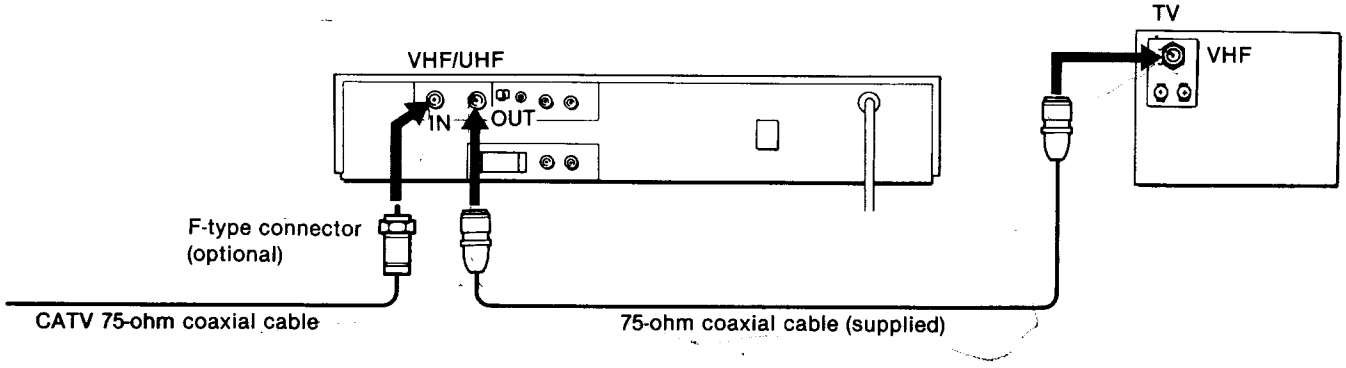


Caution
Connections between the recorder VHF/UHF OUT connector and the antenna terminals of a TV receiver should be made only as shown in these instructions. Failure to do so may result in operation that violates the regulations of the Federal Communications Commission regarding the use and operation of rf devices.
Never connect the output of the recorder to an antenna or make simultaneous (parallel) antenna and recorder connections at the antenna terminals of your receiver.

Once the connections explained above have been made, the antenna TV signals, as well as the signal from the recorder, will be fed to the TV and you can view TV programs in the usual way.

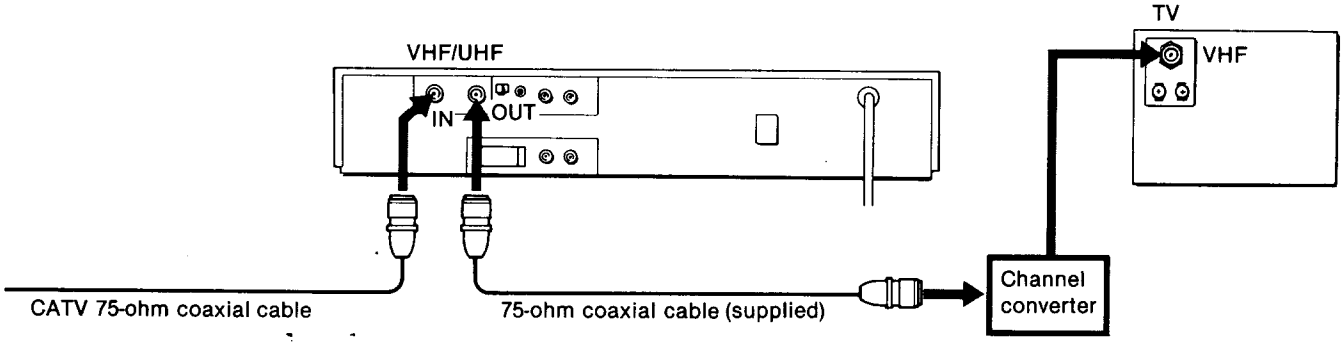
CATV cable

We recommend that you consult your cable company to make sure that the cable is properly connected.



When a TV is not a cable TV compatible type

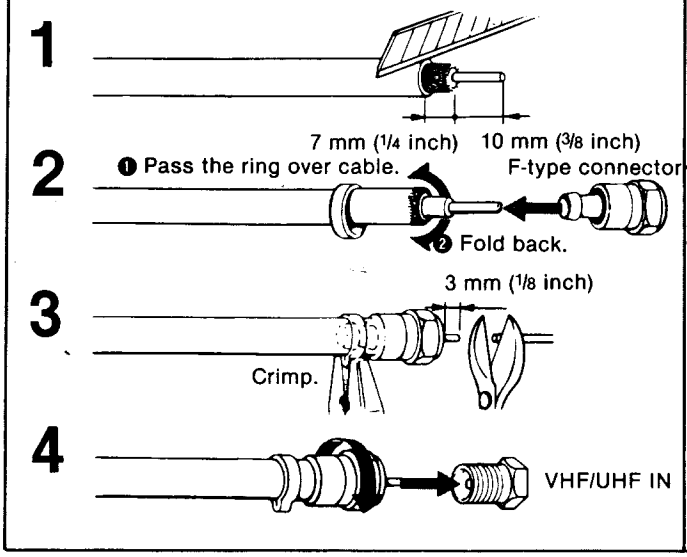
Connect the cable TV channel converter between the recorder and the TV so that you can watch another cable TV program while recording one cable TV program.



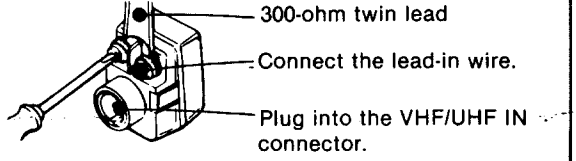
Note to cable TV system installer in the U.S.A.:

This reminder is provided to call the cable TV system installer's attention to Article 820-22 of the NEC that provides guidelines for proper grounding and, in particular, specifies that the cable ground shall be connected to the grounding system of the building, as close to the point of cable entry as practical.

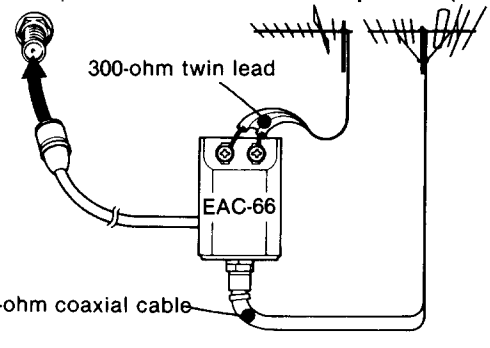
How to attach an F-type connector



How to attach an EAC-25 external antenna connector

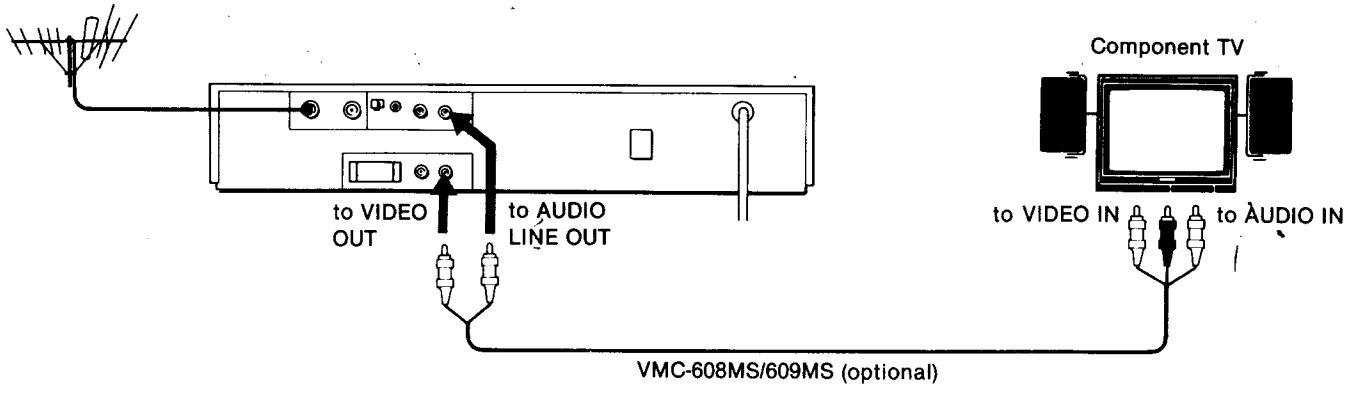


How to attach an EAC-66 U/V band separator (mixer)



COLOR MONITOR CONNECTION

To obtain a better-quality picture, connect a color monitor, such as the Sony Profeel Trinitron Component TV, instead of a conventional TV receiver.
When a component TV is combined with the speaker system as illustrated, you can enjoy tapes recorded with Beta hi-fi system.
If you use a component TV tuner together with the monitor, connect the recorder and the TV tuner in the same way as in the case of the recorder and the conventional TV receiver described on pages 4 and 5. For details on the connection of the TV tuner and the monitor, refer to the instruction manual of the TV tuner.



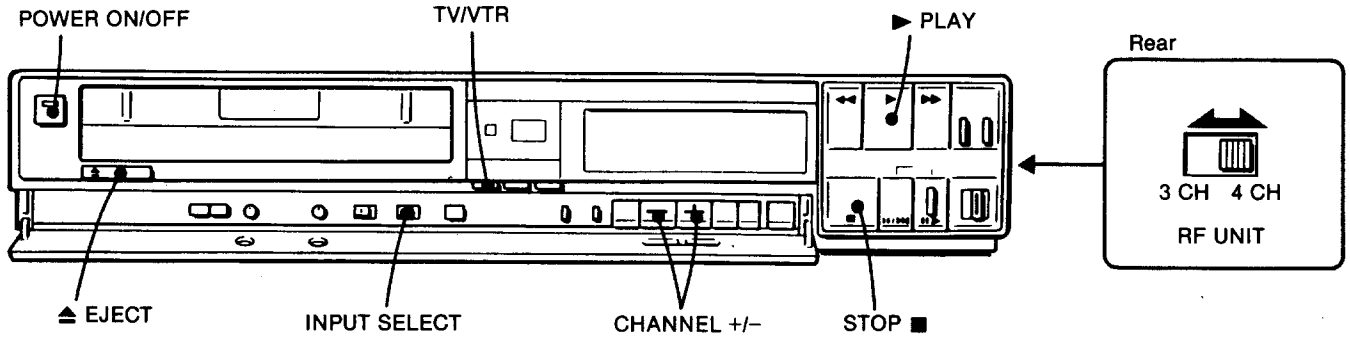
POWER CONNECTION

Connect the power plug into a wall outlet.

ADJUSTMENTS

ADJUSTING THE TV

Adjust your TV receiver to receive the signal from your recorder.
When you have connected a color monitor, the following adjustment is not necessary.



If you do not have a recorded video cassette tape

If you have a recorded video cassette tape

❶ Set RF UNIT located at the rear to 3 CH or 4 CH whichever channel is not active in your area.
❷ Press POWER ON/OFF. The indicator lights up.

❸ Press TV/VTR to display the VTR indicator in the window.
❹ Check that INPUT SELECT is set to TUNER, then select an active channel in your area with CHANNEL +/– on the recorder.

❸ Insert the cassette with the round window to the left.
❹ Press ▶ PLAY.

❺ Turn on the TV.
❻ Set the TV receiver to either VHF channel 3 or 4 to agree with the RF UNIT setting.
The TV program selected on the recorder or the tape program will be displayed on the TV screen. If a picture does not appear on the TV screen or if the display is not clear, fine-tune the channel on the TV.
● For details about TV channel adjustment, see the instruction manual of the TV receiver.

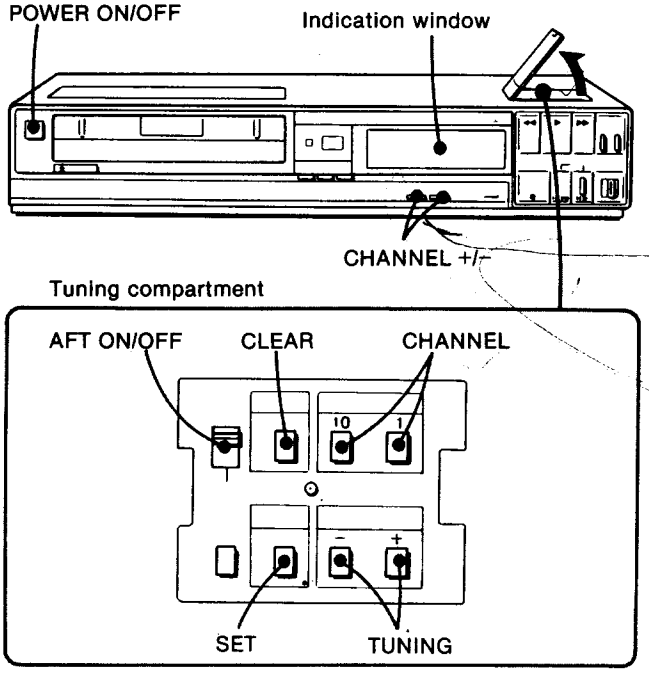
Check!
Check that the program displayed on the screen changes when a different channel is selected on the recorder. If the program does not change, repeat the preceding steps.

Check!
Check that the display on the screen changes when you stop the tape by pressing STOP ■ on the recorder. (To eject the cassette, press ⏏ EJECT.)
If the program does not change, repeat the preceding steps.

Now your TV receiver is tuned to the recorder. Whenever you use the video recorder, you should set the TV to the channel which you have chosen above.

PRESETTING THE ACTIVE CHANNELS IN YOUR AREA

Your recorder is capable of receiving VHF channels 2–13, UHF channels 14–69 and cable TV channels 14–36 (A–W), 66–94 (W+30–W+58), 98 (A–2), 99 (A–1) and 100–125 (W+59–W+84). See cable TV channel chart on page 10.
You can preset 14 channels so that only the desired channels will appear in sequence when you press the CHANNEL + or – button on the recorder.

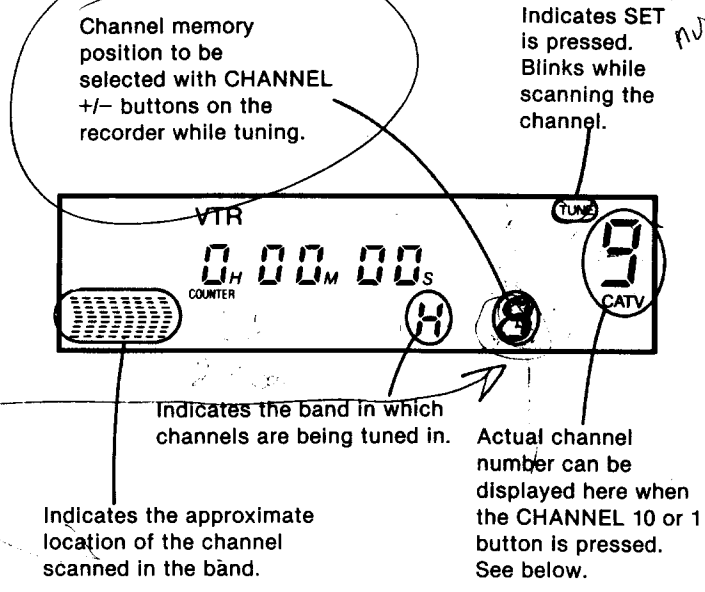


Preparation

1 Open the tuning compartment on the top of the recorder.
2 Turn the recorder and the TV on.
Make sure that the TV is set to the correct channel (channel 3 or 4) for the recorder.

TUNING CHANNELS

1 Press SET.
The "TUNE" indicator will appear in the window.


Channel memory position to be selected with CHANNEL +/– buttons on the recorder while tuning.
Indicates SET is pressed. Blinks while scanning the channel.
VTR
TUNE
0H 00M 00S
COUNTER
9
CATV
Indicates the band in which channels are being tuned in.
Actual channel number can be displayed here when the CHANNEL 10 or 1 button is pressed. See below.
Indicates the approximate location of the channel scanned in the band.

2 Select a channel memory position with the CHANNEL + or – button on the front of the recorder for the desired channel to be tuned in.
3 Press + or – TUNING (in the tuning compartment) once. The first channel appearing on your TV will be memorized.

If this is not the channel you wish, then repeat pressing TUNING until the desired channel appears on your TV. Every time you press TUNING, a higher-numbered channel will be tuned in by pressing +, and a lower-numbered channel by –.

Repeat steps 2 and 3 for other channel memory positions to be tuned in.

4 Press SET so that "TUNE" indicator disappears.

TO CHANGE THE CHANNEL DISPLAY

The channel number display at the far right of the indication window can be made to indicate the actual channel received.

Press "CHANNEL 10" (in the tuning compartment) to change tens-digit display and "CHANNEL 1" to change the units-digit display.

Every time "10" is pressed, the display changes:
Blank → 1 → 2 → 3.....9 → Blank → 1 → 2 → 3.....19
CATV CATV CATV CATV CATV

Every time "1" is pressed, the display changes:
0→1→2→3...9

TO CANCEL AN UNUSED CHANNEL

1 Select the channel to be cancelled with the CHANNEL + or – button on the front panel.
2 Press SET so that "TUNE" indicator appears.
3 Press CLEAR.
4 Press SET so that "TUNE" indicator disappears.

Then the cancelled channel will be skipped when either of the CHANNEL +/– buttons on the recorder or on the Commander is pressed.
To preset a channel in a position you have cancelled, follow steps 1–4 of "TUNING CHANNELS".

TO FINE-TUNE A WEAK STATION

If the picture of a particular channel is not acceptable, set AFT to the OFF position and press + or – TUNING until the picture becomes clearer. When viewing this particular channel, do not set AFT to ON.

CABLE TV CHANNEL CHART*

Cable TV systems use letters or numbers to designate channels. To tune in a channel, refer to this chart.

CATV channels in numbers	98	99	14	15	16	17	18
CATV channels in letters	A–2	A–1	A	B	C	D	E

19	20	21	22	23	24	25	26	27	28	29	30	31
F	G	H	I	J	K	L	M	N	O	P	Q	R

32	33	34	35	36	66	.....	.....	.....	.....	94	100	101
S	T	U	V	W	W+30	.....	.....	.....	.....	W+58	W+59	W+60

102	.....	.....	123	124	125
W+61	.....	.....	W+82	W+83	W+84

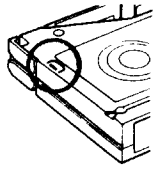
Check with your local cable TV company for more complete information on the available channels.

*The designation of the cable TV channels conforms to the EIA/NCTA recommendation.

Note
Pay cable TV systems use scrambled or encoded signals and require special converters (decoders) in addition to the normal cable connection.

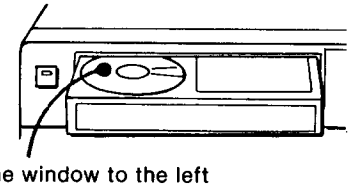
HANDLING THE VIDEO CASSETTES

Before loading
The safety tab on the rear of the cassette should not be removed for recording. When a new recording is made on a pre-recorded cassette, the previous recording will be erased automatically.
To avoid erasing a recording, break off the safety tab on the rear using a screwdriver or similar object.
If you cover the opening with a piece of plastic tape, where the safety tab has been removed, you can re-record on the cassette.



If you activate REC, QUICK TIMER, or TIMER REC ON/OFF, when the inserted cassette has its safety tab removed, AUTO indicator will appear in the indication window and the cassette will be automatically ejected.

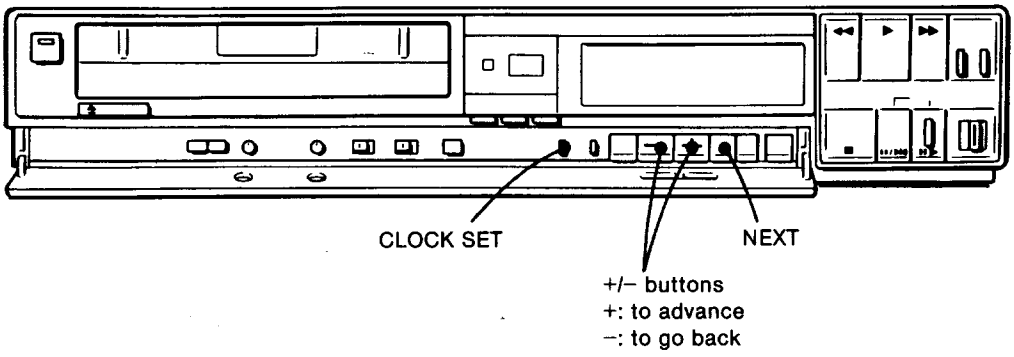
On loading
Insert the cassette with the side that has the window up (you can see the tape through the window).



With the window to the left

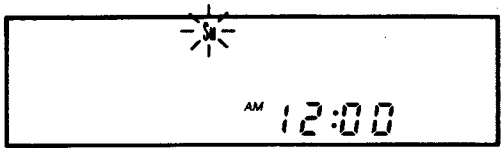
SETTING THE CLOCK

When you connect the AC power cord to a wall outlet, the clock indicates "Su AM 12:00" and it will blink to show that the clock is ready to be set.



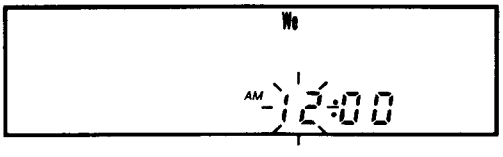
Example: to set for Wednesday afternoon at 3:56

1 Press CLOCK SET.
Set the day with the + or – button until "We" (for Wednesday) appears.

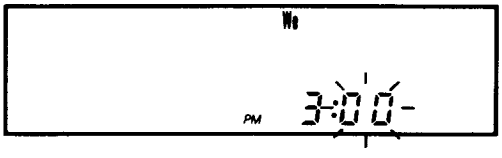


2 Press NEXT.
Set the hour with the + or – button until "PM3:00" appears.

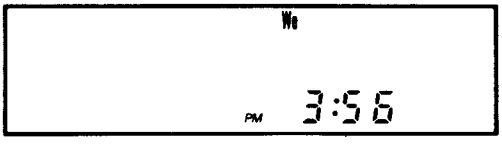
AM 12:00 = midnight
PM 12:00 = noon



3 Press NEXT.
Set the minute with the + or – button until "PM3:56" appears.



4 Press NEXT.
(For accurate setting, press NEXT at the same time with an announced time signal.)
The clock will now show the current time.



The dots of the colon(:) alternately blink every 30 seconds.

+/– buttons
The + and – buttons can be used in two ways:

When you keep a button pressed, the digits will advance continuously until the button is released.

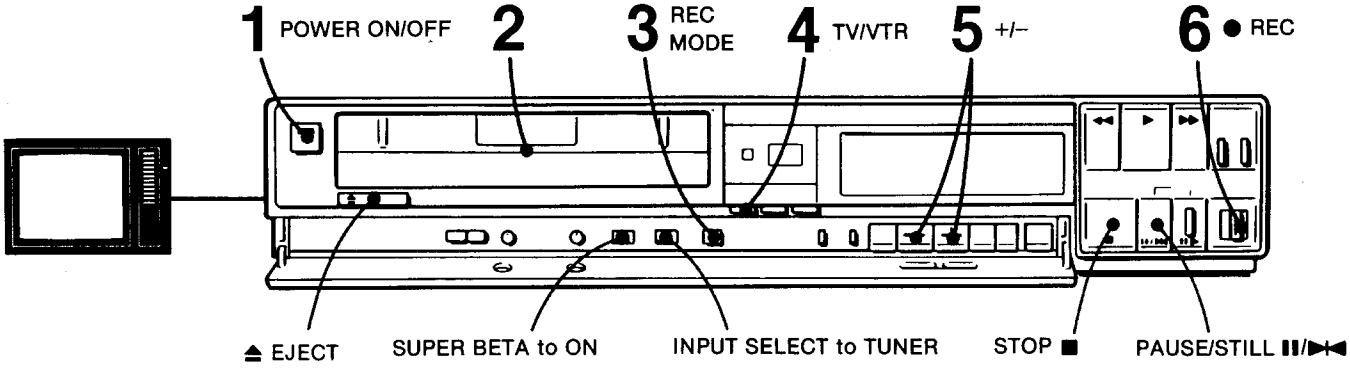
When you press and immediately release a button, the digits will advance by one.

OPERATIONS

RECORDING TV PROGRAMS

Caution

Television programs, films, video tapes and other materials may be copyrighted.
Unauthorized recording of such material may be contrary to the provisions of the copyright laws.
Also, use of this recorder with cable television transmission may require authorization from the cable television transmitter and/or program owner.



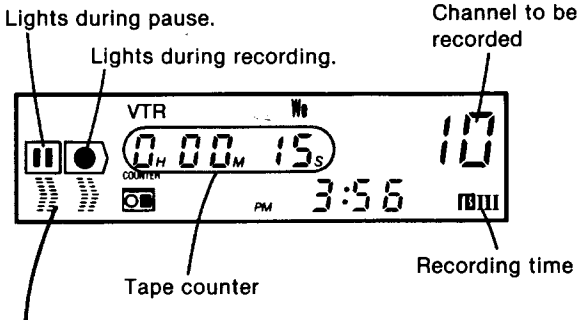
Numbers in the illustration show the sequence of operation.

Preparation

- Turn on the TV and select the channel for the recorder.
- Check that INPUT SELECT is set to TUNER.
- Check that SUPER BETA is set to ON.

1 Press POWER ON/OFF.
The power indicator will light up.
2 Insert a cassette.
3 Select the recording tape speed with REC MODE.
The length of recording time differs for each mode. Refer to the chart in the right column.
4 Press TV/VTR so that "VTR" indicator appears.
5 Select the channel to be recorded with the +/– buttons.
6 Slide ● REC to the right and video recording will begin.

Check in the window



A sequence of arrows lights up indicating movement, direction and speed of tape.

To stop recording, press STOP ■.

When the tape reaches its end, it will be rewound to the beginning.

To eject the cassette, press ⏏ EJECT.
To turn the power off, press POWER ON/OFF.

Recording time available in each mode

Cassette used	ⅡB	ⅢB
L-125	30 min.	45 min.
L-250	1 hr.	1 hr. 30 min.
L-500	2 hr.	3 hr.
L-750	3 hr.	4 hr. 30 min.
L-830	3 hr. 20 min.	5 hr.

To stop the tape momentarily
Press PAUSE/STILL ❚❚/▶◀. The TV program can still be seen on the TV, but the picture will not be recorded. To resume recording, press PAUSE/STILL ❚❚/▶◀ again. Smooth, "gap-free" recordings can be made unless the recording tape speed is changed.
To protect the video heads and the tape, the pause mode will be automatically released after about 8 minutes and **recording will stop.**

Note
The power can be automatically turned on by inserting a cassette without pressing POWER ON/OFF.

RECORDING ONE TV PROGRAM WHILE VIEWING ANOTHER

You can record a TV program selected on the recorder while viewing another TV program on your TV.

1 To start recording the TV program follow the procedure in "Recording TV programs."
2 Press TV/VTR so that the "VTR" indicator disappears.
3 Select the channel you want to view on the TV.

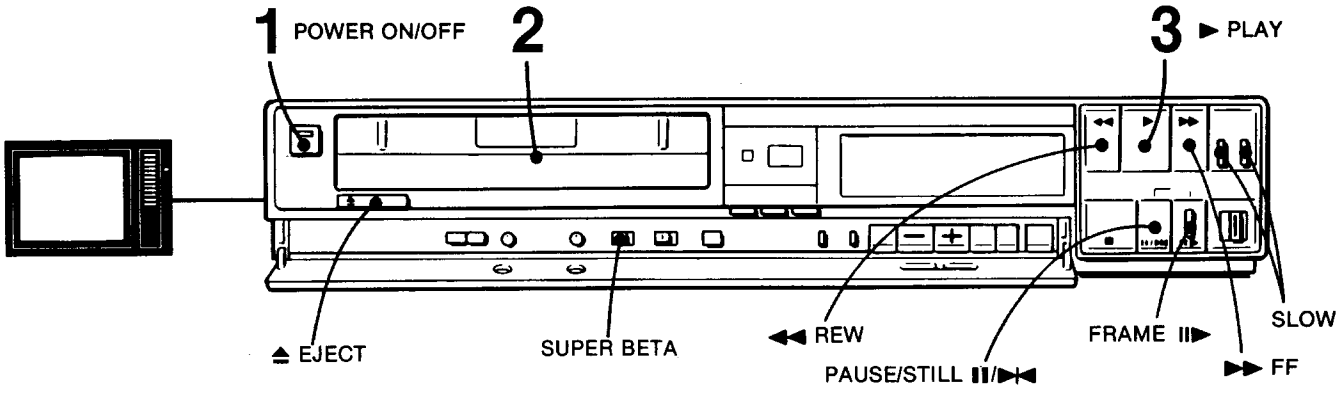
Notice
To change to channel 3 or 2 on your TV from the channel on which you have been viewing something from the video recorder, be sure to press TV/VTR **first** and then change to channel 3 or 2 on your TV. If TV/VTR is pressed after channel 3 or 2 is set on your TV, you might not get a picture. In this case, change your TV channel to another channel and then come back to channel 3 or 2.

In case you want to record a tape which is to be played back on another recorder from the very beginning of the tape, run the tape for about 15 seconds before starting recording. Otherwise you may miss the starting point during playback on the other machine.

NOTE

ABOUT THE SUPER BETA SWITCH
Normally, keep this switch in the "ON" position to obtain high picture quality recordings and playback. Tapes recorded in other non-SuperBeta VCRs can be played on SuperBeta VCRs.
Tapes recorded in SuperBeta can be played on other non-SuperBeta VCRs: However, some over-mudulation noise may appear in the picture during playback. If you intend to play back on other non-SuperBeta VCRs, then set the SUPER BETA switch to "OFF" position when making your recordings.

PLAYING BACK A RECORDED TAPE



Numbers in the illustration show the sequence of operation.

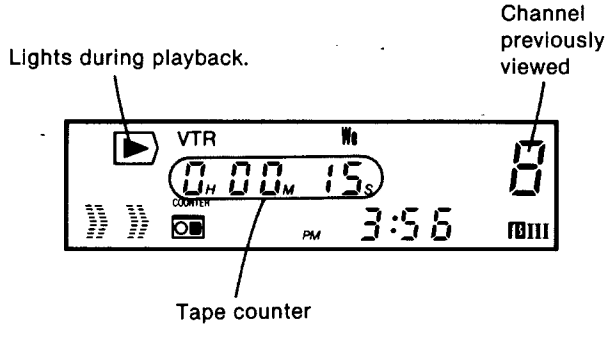
Preparation

- Turn on the TV and select the channel for the recorder.
- Set the SUPER BETA switch as follows:
  ON: for a tape recorded with this switch ON.
  OFF: for a tape recorded with this switch OFF or a tape recorded with another VCR which is not equipped with Super-Beta system.

1 Press POWER ON/OFF.
The power indicator will light up.
2 Insert a cassette.
3 Press ▶ PLAY.

To stop playing, press STOP ■.
(Or press ⏏ EJECT to take the cassette out.)

Check in the window



During playback, the recorded speed mode is automatically selected and the selected speed indicator appears on the indication window.

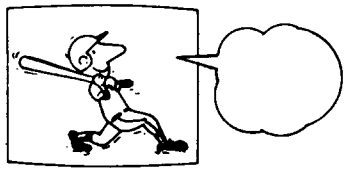
To rewind the tape, press ◀◀ REW.
To advance the tape rapidly, press ▶▶ FF.

TO PLAY BACK A TAPE RECORDED ON ANOTHER RECORDER

- If streaks or snow appear during normal playback, adjust TRACKING NORMAL for the best possible picture. Return the control to the center position after playing back the tape.
- To get a sharp picture, turn SHARPNESS toward SHARP.

FREEZE PICTURE

Press PAUSE/STILL ❚❚/▶|◀ during playback (in normal or slow mode). A freeze picture will be seen on the screen. Sound will be muted in the freeze picture. To resume normal playback, press PAUSE/STILL ❚❚/▶|◀ again or press ▶ PLAY.
To protect the video heads and the tape, the pause mode will be automatically released after about 8 minutes and **playback will resume.**



STOP-ACTION ADVANCE PICTURE

In freeze picture mode, press FRAME ❚❚▶. Each time the button is pressed momentarily, the picture advances by one frame. If FRAME ❚❚▶ is kept pressed, the picture advances frame by frame continuously.
Press PAUSE/STILL ❚❚/▶|◀ again or press ▶ PLAY to resume normal playback.

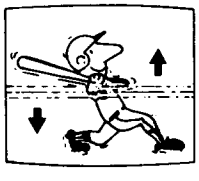
SLOW MOTION PICTURE

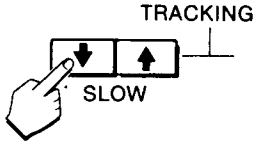
During playback (in normal, freeze or slow mode), press SLOW 1/10 for 1/10 normal speed picture, or SLOW 1/5 for 1/5 normal speed picture. Sound will be muted in the slow motion picture. To resume normal playback, press ▶ PLAY.

TO OBTAIN BETTER PLAYBACK PICTURE

— in freeze, stop-action advance or slow motion picture mode

- **If the picture seems to shake...**
  Set the VCR to the **freeze picture mode**, and then press the STILL ADJ button in the tuning compartment until the picture stabilizes.
  As long as the same TV or color montior is used, readjustment should not be necessary.
- **If a noise band appears on the screen...**
  Set the VCR to the **slow motion picture mode**, and then move the noise band by pressing the TRACKING SLOW ↑ or ↓ button.
  Readjustment may be necessary for the tapes recorded with each different VCR.

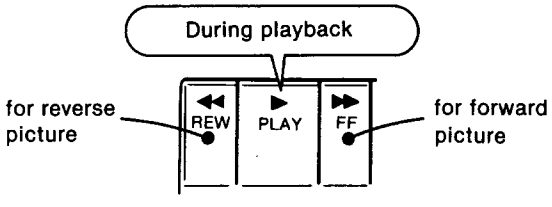




BETASCAN

— Viewing the picture at a fast speed to find a particular scene

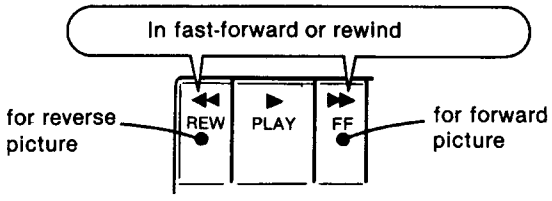
During playback (normal, slow or freeze mode), keep ▶▶ FF pressed for fast-speed forward picture, or keep ◀◀ REW pressed for a fast-speed reverse picture. To resume the previous mode, release the button.



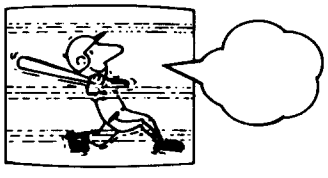
BETA SKIPSCAN

— Viewing the picture momentarily during fast-forward or rewind

In fast-forward mode, press ▶▶ FF to view a fast-speed forward picture. In rewind, press ◀◀ REW to view a fast-speed reverse picture. To resume fast forward or rewind mode, release the button.



Streaks will appear and sound wil be muted in the Betascan and Beta SkipScan pictures.

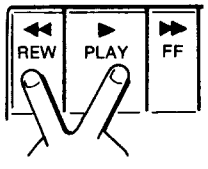


AUTO PLAY

— To start playback from the beginning of the tape

In stop mode, keeping ◀◀ REW pressed, press ▶ PLAY.

The AUTO and ▶ indicators light in the window during rewinding. After the tape is completely rewound, it will be automatically played back.

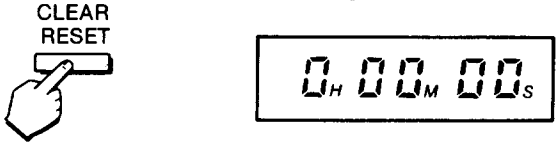


USE OF THE TAPE COUNTER

The tape counter indicates the approximate running time of the tape and the relative position of programs on the tape.

TO INDEX THE TAPE CONTENTS

Before starting recording or playback, press CLEAR/RESET to set the counter to "0H00M00S". By noting the counter reading at the desired point, you can easily find that point later by referring to the counter. Use the label on the cassette to list the programs and their counter readings.



Notes

- The counter reading is automatically reset to zero when a cassette is newly inserted.
- The counter reading will be retained in the memory even after the power is turned off, as long as the cassette is in the cassette compartment.
- The counter will not advance during any portion of a tape that is blank or unrecorded. So the counter can be used to find unrecorded sections on a tape.

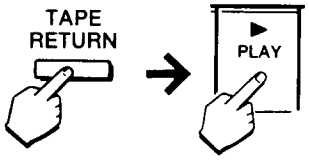
TAPE RETURN/TAPE RETURN PLAY

— To stop the tape at a particular point or play back from particular point

1 During recording or playback, press CLEAR/RESET at the point you later want to locate.
2 When recording or playback is finished, stop the tape and press TAPE RETURN.
The tape will be rewound or advance close to the point where the counter reads "0H00M00S".

To start playback automatically from the "0H00M00S" point

Press ▶ PLAY after pressing TAPE RETURN.



The AUTO and ▶ indicators light in the window during rewinding or fast-forward mode.

Note

The tape return and tape return play cannot be activated when the counter reading is within ±0H00M29S.

TIMER-ACTIVATED RECORDING

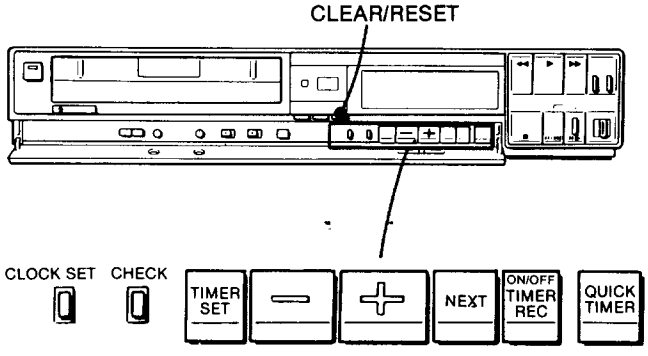
Six recordings can be preset to be made for any day or every day within seven days, or on the same day every week.

The clock time must first be set to the correct current time.
To set the clock, see page 11.

BEFORE SETTING THE TIMER

- Make sure the cassette tape is long enough to record programs.
- Be sure the safety tab has not been removed. —If removed, the cassette will be automatically ejected when TIMER REC ON/OFF is pressed.
- Press POWER ON/OFF to turn power on.
- Be sure a cassette is inserted in the compartment. Check the ⊡ indicator in the window.
- Select the recording tape speed. Check the ▮▮ or ▮▮▮ indicator in the window.
- Slide INPUT SELECT to TUNER.
- Set SUPER BETA to ON.

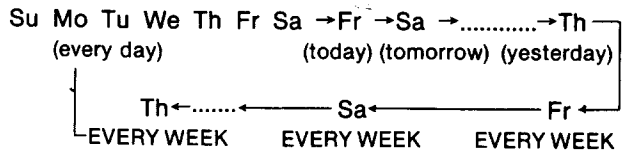
Suppose you want to make a recording of channel 6 from 7:10 to 11:15 on Friday evening.



NEXT button
Every time you press the NEXT button, the item to be preset will blink and you will be setting the item.

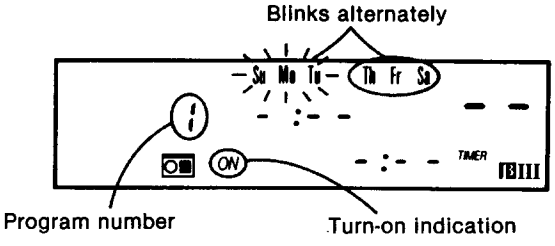
+/– buttons
To set the day of the week, the time and the channel, press the + button to advance, and the – button to go back.

Day indication
By pressing the + button, the day indication changes as follows:
Ex. Today is Friday.

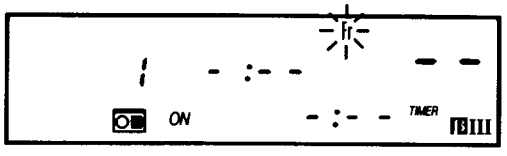


To record at the same time every day, select "Su Mo Tu We Th Fr Sa".
To record at the same time and day every week, select the desired day indication with "EVERY WEEK".

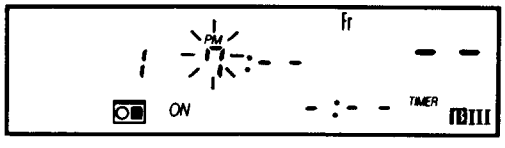
1 Press TIMER SET.
The program number (up to 6) appears. "1" indicates that you are making the first timer setting.



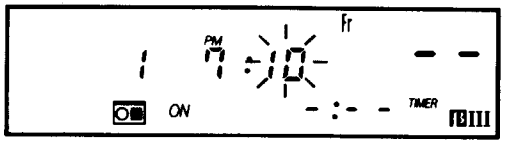
2 Set the day with the + or – button.



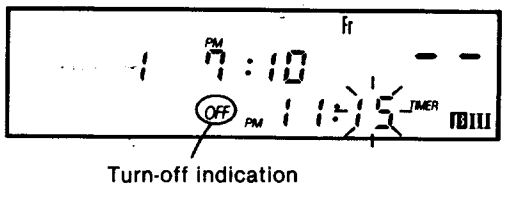
3 Press NEXT and set the turn-on hour with the + or – button.
Make sure that AM or PM is properly set.
AM 12:00 = midnight
PM 12:00 = noon



4 Press NEXT and set the minute with the + or – button.



5 Press NEXT and set the turn-off time as in steps 3 and 4.

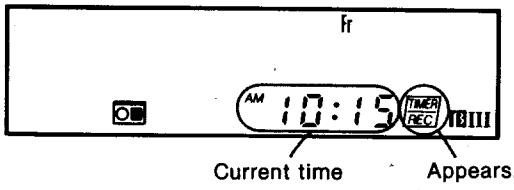


6 Press NEXT and set the channel to be recorded with the + or – button.

7 Press NEXT
The tape counter and the current time will reappear.

To preset another program, press TIMER SET again and repeat steps 2 to 7. Up to 6 programs can be preset.

8 Press TIMER REC ON/OFF.
The power will be turned off and the recorder will be in the standby mode.



Current time Appears.

Recording will start at the preset time and will automatically stop when the recording is completed.

NOTICE:
ONCE THE TIMER REC INDICATOR HAS LIT UP, only the functions of CHECK and TIMER REC ON/OFF on the recorder can be activated. To turn on the power again for the usual manual operations, press TIMER REC ON/OFF again so that the indicator turns off. This does "not" affect the memory of the timer. As long as you press it again, timer recording will be made exactly as preset.

BEFORE THE TIMER-ACTIVATED RECORDING STARTS

To check the timer settings
Press CHECK. Every time you press CHECK, each program will be displayed.

To change the settings
1 Press TIMER REC ON/OFF. The TIMER REC indicator turns off.
2 Press CHECK to select the program to be changed.
3 Press TIMER SET.
4 Press NEXT enough times until the item to be changed blinks.
5 Change the setting with the + or − button.
6 Press NEXT so that the tape counter and the current time appear.
7 Press TIMER REC ON/OFF again to reactivate the timer.

To erase the memory of a particular program
1 Press TIMER REC ON/OFF. The TIMER REC indicator turns off.
2 Press CHECK to select the program to be erased.
3 Press CLEAR/RESET. The memory of the program will be eliminated.
4 If other programs have been preset for recording, press TIMER REC ON/OFF again to reactivate the timer.

To stop during a timer recording
Press TIMER REC ON/OFF. The recording will stop and the power will be turned off.

WHEN A TIMER RECORDING IS FINISHED

When a timer recording is finished, the programming (except the everyday or every week setting) will be eliminated and the next timer recordings will move up one position each. For example if you have preset 4 programs, when the first timer recording is finished, the fourth program position will be vacant. If TIMER SET is pressed, "4" will appear in the window.

QUICK TIMER RECORDING

You can immediately start a recording and set the recording duration as well simply by pressing QUICK TIMER. The duration can be set for up to 5 hours by 30 minute intervals.
This function is also functional during a regular non-timer recording so that the recording stops and the power turns off after the preset duration.

1 Press QUICK TIMER when the recorder is turned off or in stop mode.
The power will be turned on.

Cassette is inserted. Channel previously selected

2 Choose the channel to be recorded with the + or − button.
If you do not advance to the next step within 30 seconds, the recorder will turn off.

3 Press QUICK TIMER so that the recording starts.
Now decide the recording duration.

Every time you press QUICK TIMER, the recording duration indication changes as follows:
0:30 → 1:00 → 1:30 → 2:00.....5:00 → 0:00

30 minutes one hour one and a half hour two hours five hours zero hour

When the recording starts, the duration indication decreases minute by minute to 0:00 and the recorder turns off automatically about 30 seconds after the recording has finished.

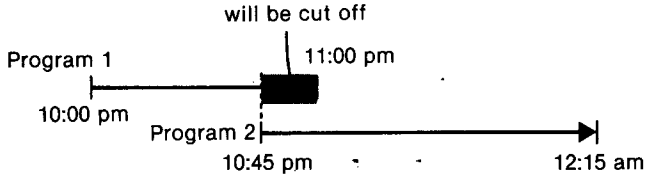
To stop a quick timer recording
Press TIMER REC ON/OFF. The power will be turned off as well.

During regular non-timer recording
By pressing QUICK TIMER, you can set the duration so that the recording stops and power turns off after the preset duration.

Once the quick timer recording has started
No function button except for the following will activate:
QUICK TIMER.....to change the recording duration
TIMER REC ON/OFF.....to interrupt the quick timer recording
PAUSE.....to stop the quick timer recording momentarily
CHECK.....to check the timer programs preset

SPECIFIC NOTES ON TIMER-ACTIVATED RECORDINGS

When the presettings of your timer-activated recordings overlap
There will be no error indication to inform you of the overlap. Even if there is an overlap, a recording will be made.



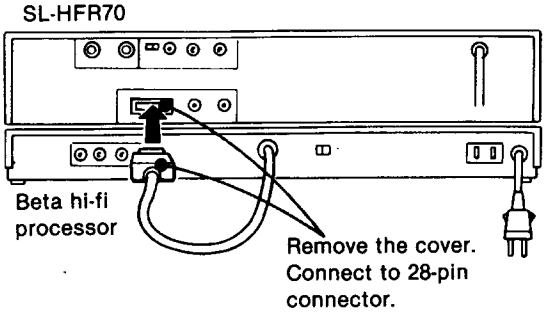
In this case, the recording of program 2 will begin before the first recording is completely finished. Consequently, the program 1 will be cut off in the middle of its recording.

If the power should be interrupted during timer recording (including quick timer recording)
If the clock shows "AM 12:00" and blinks
When the recorder is in the standby mode, all the timer settings have been erased. Reset the clock and timer settings.
However, if the power interruption occurs while recording, the recording will then stop.

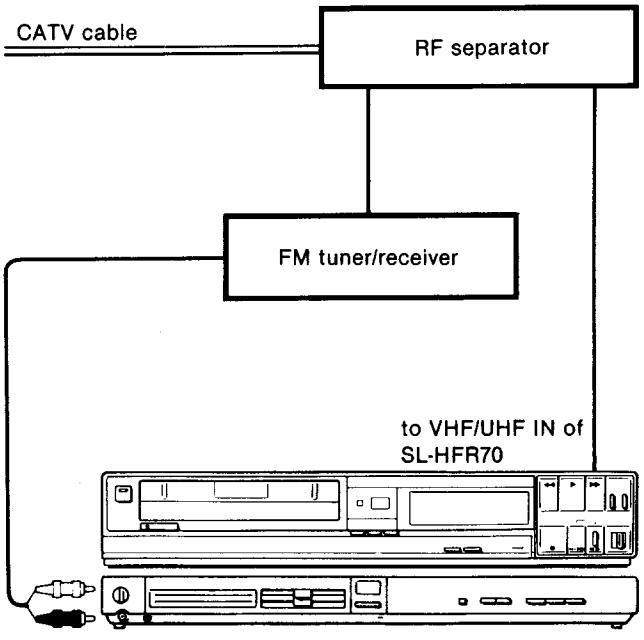
BETA HI-FI AUDIO RECORDING AND PLAYBACK

To enjoy high-fidelity stereo sound, connect an optional HFP-100 or HFP-200 Beta hi-fi processor.

Connection



For FM simulcast recording
For recording FM simulcasts, such as MTV (music TV), connect an FM stereo tuner to the AUDIO LINE IN jacks on the rear of the Beta hi-fi processor, as well as making the cable TV connection.

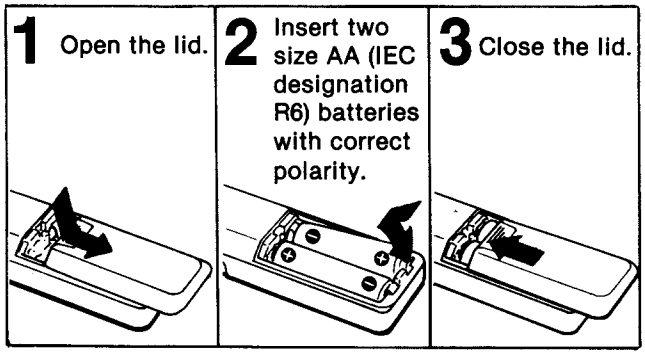


For details, refer to the instruction manual furnished with the Beta hi-fi processor.

REMOTE CONTROL OPERATION

You can control almost all the functions of this video cassette recorder from your armchair using the supplied Remote Commander.

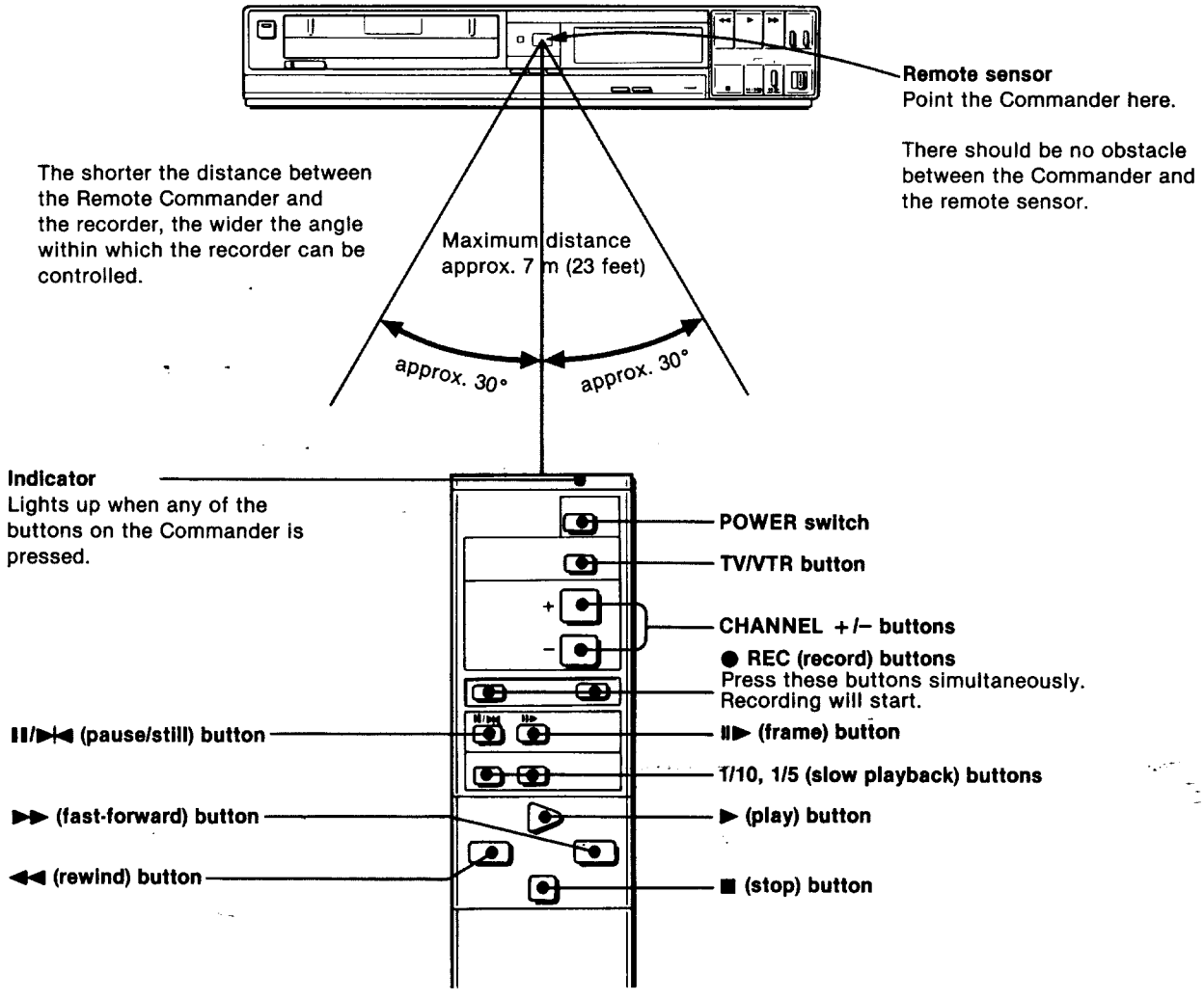
BATTERY INSERTION



Battery life
In normal operation, batteries will last for about six months. If the range of the Remote Commander becomes noticeably shorter, replace the batteries with new ones. When the batteries are exhausted, the indicator will not light when the buttons on the Commander are pressed.

If the Remote Commander is not to be used for a long period of time, remove the batteries to avoid possible damage from battery leakage.

OPERATION


Remote sensor
Point the Commander here.
There should be no obstacle between the Commander and the remote sensor.
The shorter the distance between the Remote Commander and the recorder, the wider the angle within which the recorder can be controlled.
Maximum distance approx. 7 m (23 feet)
approx. 30°
approx. 30°
Indicator
Lights up when any of the buttons on the Commander is pressed.
POWER switch
TV/VTR button
CHANNEL +/– buttons
● REC (record) buttons
Press these buttons simultaneously. Recording will start.
II/▶I◀ (pause/still) button
II▶ (frame) button
1/10, 1/5 (slow playback) buttons
▶▶ (fast-forward) button
▶ (play) button
◀◀ (rewind) button
■ (stop) button

The buttons on the Commander except the ● REC buttons will function the same as the buttons on the recorder with the similar name or mark.
(The auto play cannot be activated with the ◀◀ and ▶ buttons.)

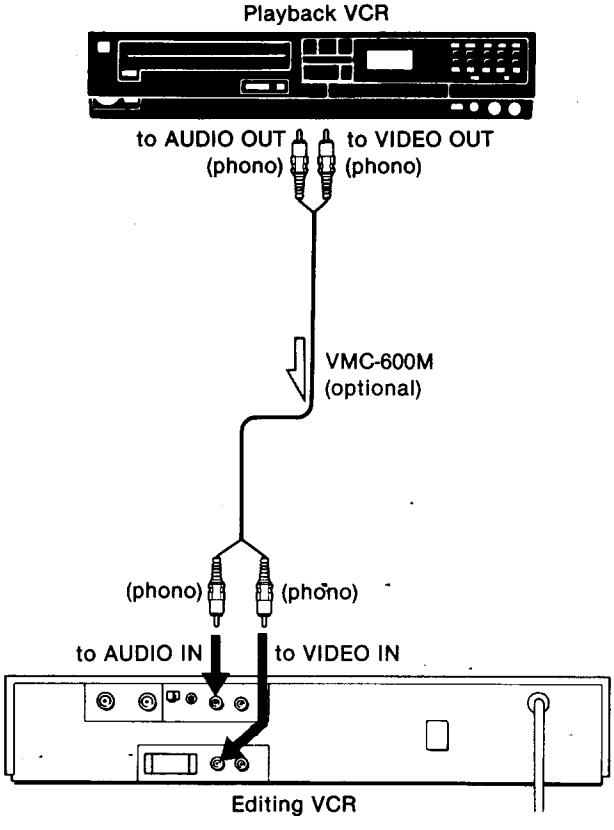
EDITING TAPES

To edit a tape you will need two video recorders: one is to play back the original tape and the other is to edit.

CAUTION

Television programs, films, video tapes and other materials may be copyrighted. Unauthorized duplication of such material may be contrary to the provisions of the copyright laws.

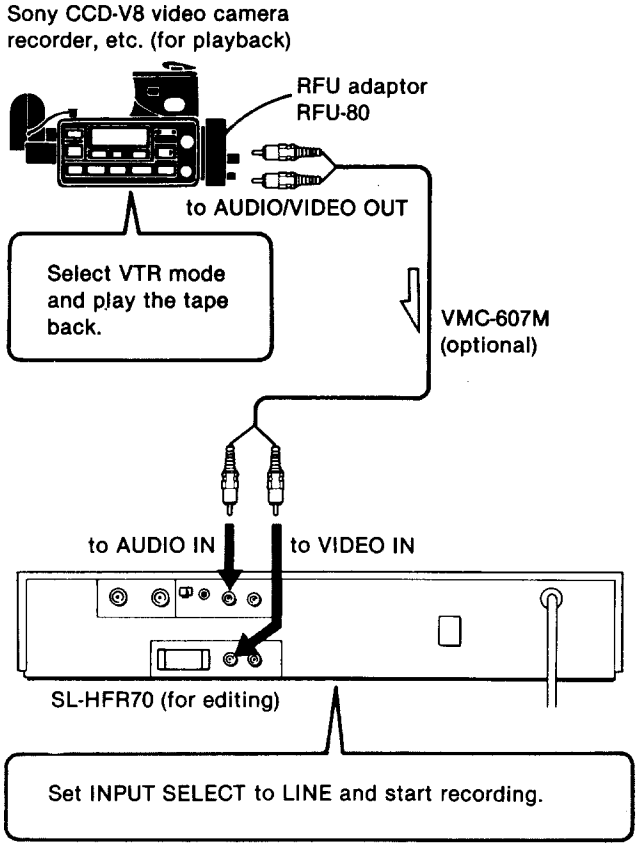
TO EDIT FROM/ONTO ANOTHER VCR



Set the INPUT SELECT switch of the editing VCR to LINE (line input), if provided.

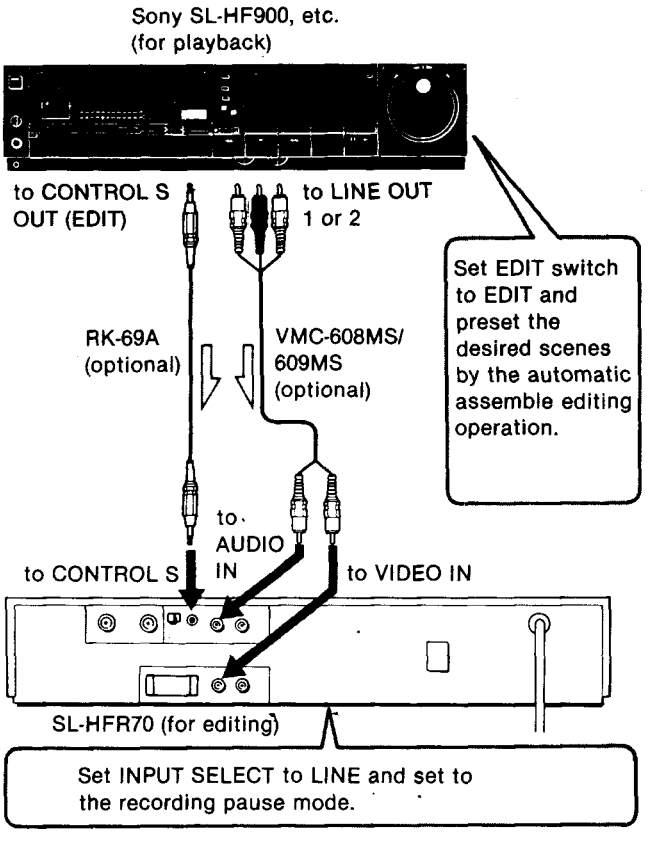
TO EDIT FROM A VIDEO CAMERA RECORDER

An 8 mm format cassette filmed with a video camera recorder can be edited to a format cassette.


Sony CCD-V8 video camera recorder, etc. (for playback)
RFU adaptor RFU-80
to AUDIO/VIDEO OUT
Select VTR mode and play the tape back.
VMC-607M (optional)
to AUDIO IN
to VIDEO IN
SL-HFR70 (for editing)
Set INPUT SELECT to LINE and start recording.

TO EDIT FROM A VCR EQUIPPED WITH THE CONTROL S (EDIT) OUTPUT

Only the particular scenes preset on the playback VCR will be edited (automatic assemble editing). Recording start/stop on the SL-HFR70 can be activated in synchronization with playback start/stop on the playback VCR.


Sony SL-HF900, etc.
(for playback)
to CONTROL S OUT (EDIT)
to LINE OUT 1 or 2
RK-69A (optional)
VMC-608MS/ 609MS (optional)
Set EDIT switch to EDIT and preset the desired scenes by the automatic assemble editing operation.
to AUDIO IN
to CONTROL S
to VIDEO IN
SL-HFR70 (for editing)
Set INPUT SELECT to LINE and set to the recording pause mode.

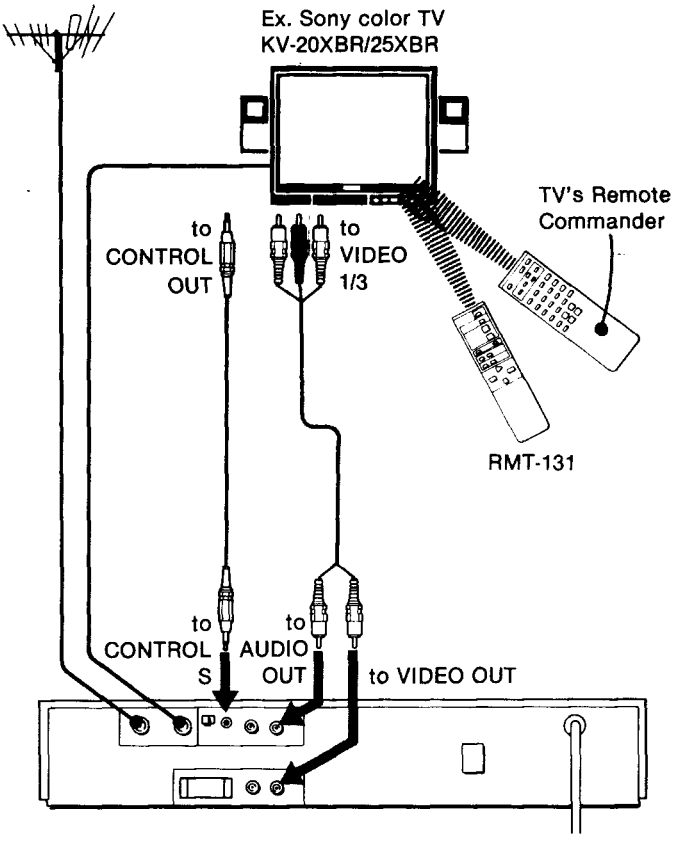
- The optional RM-E100 video editing controller allows easier editing between two VCRs.
- The required connecting cords may differ depending on VCRs. Refer to the instruction manual of the VCR.

Note

Avoid repetition of editing tapes, as the picture and tone quality will be impaired noticeably for newly edited tapes.

Use of the CONTROL S input jack

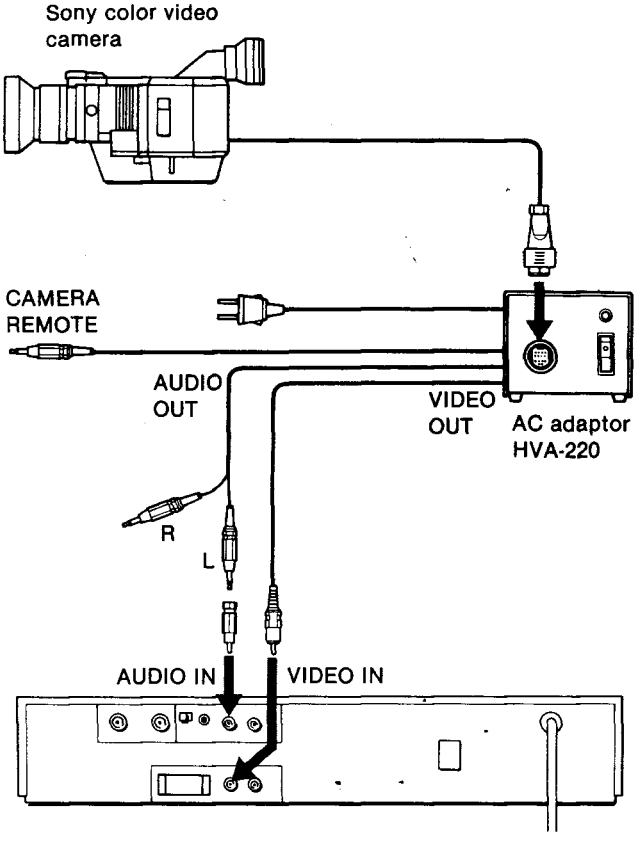
If this jack is connected to the CONTROL (S) output jack of a Sony color TV or TV tuner, this recorder can be controlled by pointing the supplied RMT-131 Remote Commander toward the remote sensor on the color TV or TV tuner.



CAMERA RECORDING

CONNECTIONS

- The camera must conform to American TV (EIA) standards.
- The use of a Sony HVA-220 AC adaptor is required.



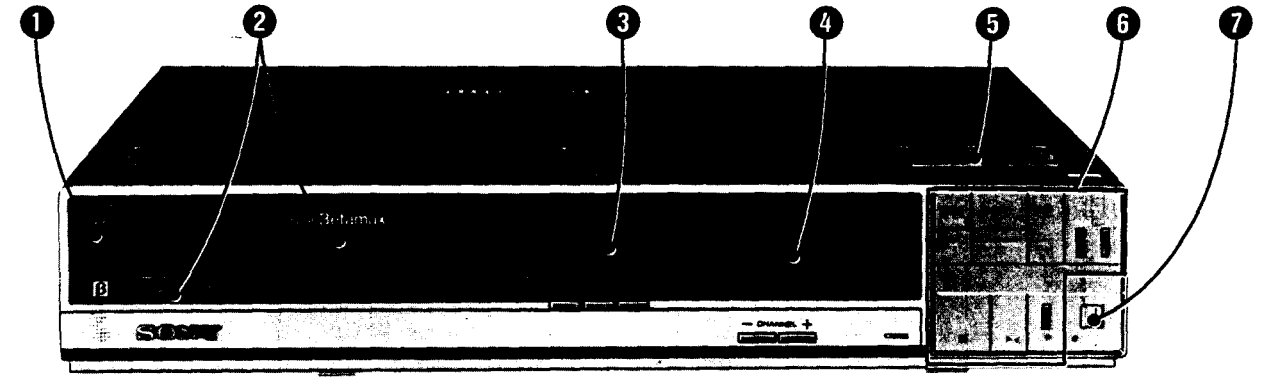
OPERATION

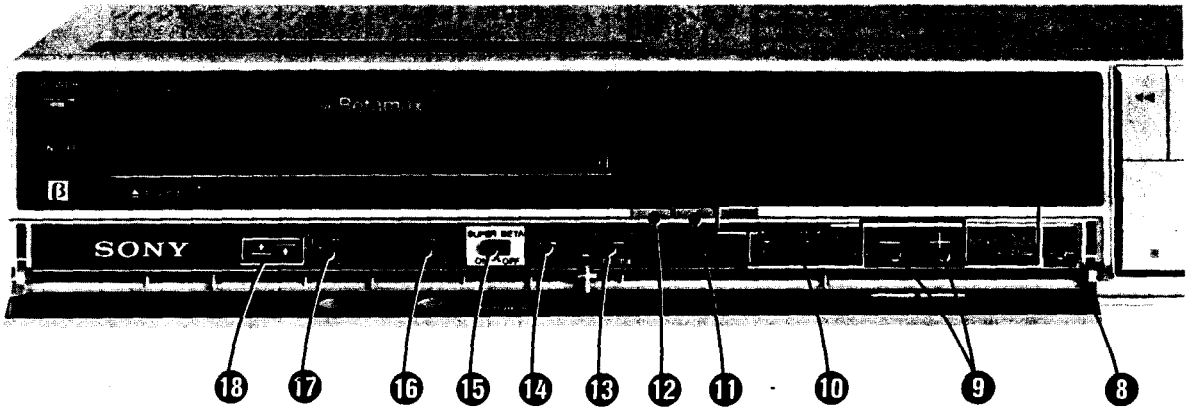
Set INPUT SELECT on the recorder to LINE.
To start recording, slide ● REC on the recorder or on the Commander to the right.
To stop recording press STOP ■ on the recorder or on the Remote Commander.
To stop recording momentarily, press PAUSE/STILL ❚❚/▶◀ on the recorder or on the Commander.
The tape run/stop button on your camera will not function with this recorder.

GENERAL

LOCATION AND FUNCTION OF CONTROLS

Front



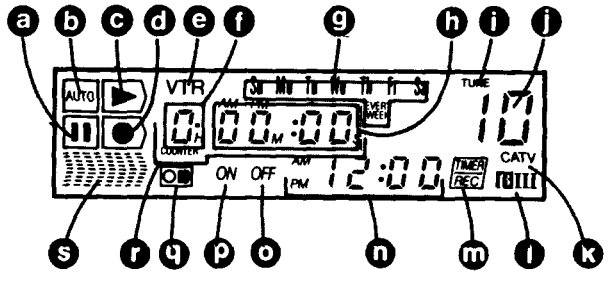


❶ POWER ON/OFF switch and indicator
Press the POWER ON/OFF switch to turn the recorder on. The indicator will light up. To turn the recorder off, press this switch again. The indicator will go off. The timer section will continue to operate and the time will be displayed even if the POWER ON/OFF switch is off, as long as the AC power cord is plugged into a working outlet.

❷ Cassette compartment and ⏏ EJECT button
Press ⏏ EJECT to take out the cassette.

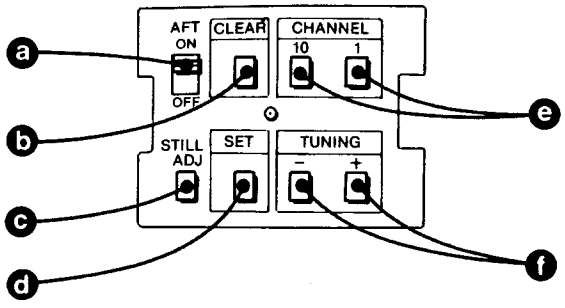
❸ Remote sensor
Detects the signals transmitted from the Remote Commander.

❹ Indication window



- ⓐ Lights during pause.
- ⓑ Lights when auto play, tape return, tape return play or automatic cassette eject is engaged.
- ⓒ Lights during playback.
- ⓓ Lights during recording.
- ⓔ Indicates VTR mode.
- ⓕ Indicates the timer program position during timer setting.
- ⓖ Day-of-the-week indicators
- ⓗ Indicates the turn-on time of the timer during timer setting.
- ⓘ Lights when SET is pressed for presetting TV channels.
- ⓙ Channel number. When INPUT SELECT is set to LINE, the number will disappear.
- ⓚ Cable TV channel indicator
- ⓛ Tape speed indicator
- ⓜ Lights when TIMER REC ON/OFF or QUICK TIMER is pressed.
- ⓝ Clock display. During timer setting, the turn-off time is displayed.
- ⓞ Turn-off indicator
- ⓟ Turn-on indicator
- ⓠ Lights when a cassette is inside.
- ⓡ Tape counter. Indicates the approximate tape running time.
- ⓢ A sequence of arrows shows the speed and direction of tape movement. When a TV channel is being preset, the arrows show the approximate location of the channel in the band.

❺ Buttons in the tuning compartment



ⓐ AFT switch
Normally set to ON. The automatic fine tuning circuit locks in and maintains a sharp picture. When the signal is weak on a particular channel, set to OFF.

ⓑ CLEAR button
Press to cancel the memory of a particular channel in order to reset or skip the unused channel.

ⓒ STILL ADJ (adjust) button
If the freeze, stop-action advance or slow motion picture seems to shake, set the VCR to the freeze picture mode and press this button until the picture stabilizes.

ⓓ SET button
Press to tune in a channel to be preset. The "TUNE" indicator appears in the window. After presetting, press again.

ⓔ CHANNEL 10 and 1 buttons
Change the channel number displayed to match the channel received. Press "10" to change the tens-digit, and "1" to change the units-digit.

❶ TUNING button
Press to tune in an active channel. Every time you press, a channel will be tuned in. The band indicator, L, M, H or U, of the band being scanned to tune in a channel will light up in the window.

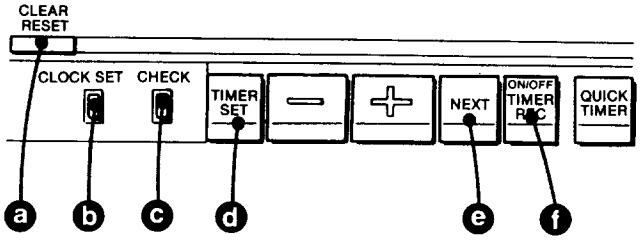
❻ Tape transport buttons
◀◀ REW (rewind): Press to rewind the tape. Also used for the reverse Betascan and Beta SkipScan functions and the auto play function.
▶ PLAY: Press to play back the tape. Also used for auto play function and tape return play.
▶▶ FF (fast-forward): Press to advance the tape rapidly. Also used for the forward Betascan and Beta SkipScan functions.
STOP ■: Press to stop the tape.
PAUSE/STILL ❚❚/▶|◀: Press to stop the tape momentarily during recording or playback. A freeze picture will be seen during playback. Press again to release pause mode.
❚❚▶ FRAME: During pause of playback (freeze picture mode), press to advance the picture by one frame. (Stop-action advance picture)
SLOW: During playback or pause of playback, press 1/10 or 1/5 to obtain a slow motion picture (1/10 or 1/5 normal speed respectively).

❼ ● REC (record) button
Slide to the right to start recording. While a recording is being made, the [●] indicator will light up in the window.

❽ QUICK TIMER button
Functions only in non-timer recording. Press twice to start a quick timer recording. The recording duration can be set in 30-minute segments up to 5 hours. This button is also used to extend the on-going recording time.

❾ CHANNEL +/– buttons
Press "+" to advance or "–" to move backward the channel numbers, day of the week, hours and minutes.

❿ Buttons for clock and timer setting



ⓐ CLEAR/RESET button
Press to cancel the memory of timer recording of a particular program during timer-recording presetting or checking. Or press to set the tape counter reading to "0H00M00S".

ⓑ CLOCK SET button
Press this button as the first step in setting the current time.

ⓒ CHECK button
Press to check the contents of the timer presettings.

ⓓ TIMER SET button
Press this button as the first step in setting or resetting timer recording.

ⓔ NEXT button
Press to advance to the next item to be set during clock or timer setting.

ⓕ TIMER REC ON/OFF button
Press to activate the timer recording. To deactivate the timer recording including quick timer recording, press again.

⓫ TAPE RETURN button
In stop mode, press to advance or rewind the tape to the counter "0H00M00S" point approximately.
When ▶ PLAY is pressed after TAPE RETURN, playback will start automatically after rewinding or fast-forward mode.

⓬ TV/VTR button
To view a TV program selected by +/– buttons on the recorder or to monitor the picture being recorded, press this button so that the "VTR" indicator will appear. When ▶ PLAY on the recorder is pressed, the recorder is automatically set in the VTR mode. To view a TV program during recording, press this button so that "VTR" disappears. When the recorder is turned off, the recorder is automatically set in the TV mode.

⑬ **REC MODE (recording mode) button**
By pressing this button, select either ▮▮ or ▮▮▮ to set the recording speed.

⑭ **INPUT SELECT switch**
Select the program to be recorded.
TUNER: for recording TV programs
LINE: for recording signals connected to the VIDEO IN and AUDIO IN jacks. The channel number will disappear.

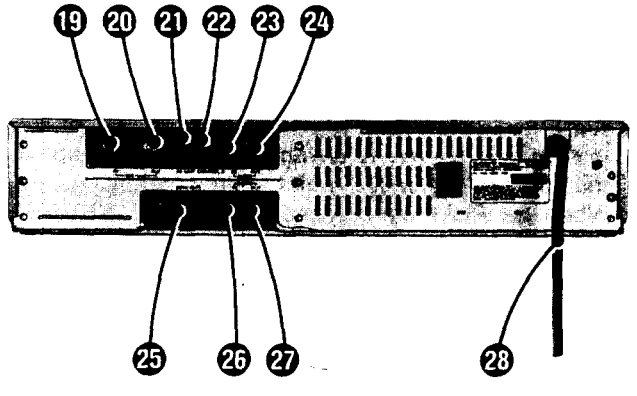
⑮ **SUPER BETA switch**
Normally keep this switch at ON to obtain high-quality recording/playback picture. Set this switch to OFF when playing back a tape recorded with this switch "OFF" or when there is an noise during playback of a tape recorded on another VCR and it seems to be eliminated by setting this switch to OFF.

⑯ **SHARPNESS control**
Adjust the sharpness of the playback picture if necessary. Normally set this control at the center detent position.

⑰ **TRACKING NORMAL control**
The center detent position provides the correct tracking for the cassettes recorded on this recorder.
If streaks or snow appear in the normal playback of a cassette which has been recorded on another video cassette recorder, turn this knob to obtain the best possible picture.

⑱ **TRACKING SLOW buttons**
If a noise band appears in the slow motion playback, press either button. Press ↑ to move the noise band upwards, and ↓ to move downwards.

Rear



⑲ **VHF/UHF IN terminal**
Connect a VHF/UHF TV antenna or CATV cable here.

⑳ **VHF/UHF OUT terminal**
Connect to the VHF antenna of the TV receiver. The signal of a VTR program (converted to channel 3 or 4) and the TV signal will be supplied to the TV receiver.

㉑ **RF UNIT selector**
Select the output channel at the VHF/UHF OUT terminal. Set the switch to 3CH or 4CH, whichever is not active in your area.

㉒ **CONTROL S input jack (mini)**
Connect to the CONTROL S output jack of other Sony products for various systematic operations. Direct the Remote Commander to the remote sensor of the connected equipment. When this jack is connected to the CONTROL S OUT (EDIT) jack of the Sony SL-HF900 video cassette recorder, automatic assemble editing operation of the SL-HF900 can be activated with this recorder.

㉓ **AUDIO IN jack (phono)**
This jack accepts audio signals. Connect it to the line output of a piece of audio equipment, such as an amplifier, tape recorder, or to the audio output of another video recorder.

㉔ **AUDIO OUT jack (phono)**
This jack provides the audio signals from this recorder. Connect it to the line input of audio equipment, such as an amplifier, tape recorder, or to the audio input of another video recorder or a video monitor.

㉕ **BETA HI-FI connector (28-pin)**
Connect an optional HFP-100 or HFP-200 Beta hi-fi processor here for Beta HI-FI listening and recording. For recording FM simulcast, such as MTV (music TV), connect an FM stereo tuner as well as making the cable TV connection.

㉖ **VIDEO IN jack (phono)**
This jack accepts video signals.
Connect it to the video output of a camera or another video recorder.

㉗ **VIDEO OUT jack (phono)**
This jack provides the video signals from this recorder.
Connect it to the video input of another video recorder or a video monitor.

㉘ **AC power cord**

SPECIFICATIONS

System

Video recording system
Rotary two-head helical scanning
Video signal — EIA standards, NTSC color
Channel coverage
VHF channels 2–13
UHF channels 14–69
Cable TV channels 14–36, 66–94 and 98–125
VHF output signal
Channel 3 or 4 (selectable)
75 ohms, unbalanced
Antenna — 75-ohm external antenna terminal for VHF/UHF

Video

Input — VIDEO IN: phono jack
1.0 V (p-p), 75 ohms, unbalanced, sync negative
Output — VIDEO OUT: phono jack
1.0 V (p-p), 75 ohms, unbalanced, sync negative
Signal-to-noise ratio
Better than 45 dB

Audio

Input — AUDIO IN: phono jack
More than 47 kilohms, −10 dBs
(0 dBs = 0.775 V rms)
Output — AUDIO OUT: phono jack
Less than 10 kilohms, −10 dBs
(47 kilohms load), unbalanced
Control S input — Minijack
BETA HIFI connector
28 pin
Frequency response
[β II] : 50–10,000 Hz
[β III] : 50–7,000 Hz
Signal-to-noise ratio
Better than 40 dB

Tape transport

Tape speed — [β I] : 4.0 cm/sec. (playback only)
[β II] : 2.0 cm/sec.
[β III] : 1.33 cm/sec.
Maximum recording time
[β II] : 3 hours 20 min.
[β III] : 5 hours
(with Sony L-830 cassette)
Fast forward time
Under 4 min. (L-500)
Rewind time — Under 4 min. (L-500)

Timer

Clock — Synchronized with the power frequency
Time indication — 12-hour cycle
Timer setting — Only for recording
6 events/7 days or every week

General

Power requirements
120 V ac ±10%, 60 Hz ±0.5%
Power consumption
38 W
Operating temperature
5°C to 40°C (41°F to +104°F)
Storage temperature
−20°C to +60°C (−4°F to +140°F)
Dimensions — Approx. 430 × 80 × 363 mm (w/h/d)
(17 × 3¼ × 14⅜ inches)
incl. projecting parts and controls
Weight — Approx. 7.3 kg (16 lb 2 oz)

Remote Commander RMT-131

Remote control system
Infrared control
Power requirements
3 V DC, 2 size AA batteries
(IEC designation R6)
Dimensions — Approx. 44 × 20 × 175 mm (w/h/d)
(1¾ × ¾ × 7 inches)
including projecting parts and controls
Weight — Approx. 110 g (3.9 oz) with batteries

Accessories supplied

Remote Commander RMT-131 with 2 size AA batteries
EAC-25 external antenna connector (300-ohm to 75-ohm matching transformer) (1)
75-ohm coaxial cable with F-type connectors
2 m (6 feet) long (1)

Optional accessories

Betamax video cassette tape
Video head cleaning cassette L-25CL

Design and specifications subject to change without notice.

TROUBLE CHECKS

If any difficulty should arise during operation, first check the power cord connection, then go through the following list. Should the difficulty persist, unplug the unit and contact your Sony dealer or local authorized Sony service facility.

	Symptom	Possible causes
GENERAL	POWER ON/OFF switch does not function.	TIMER REC ON/OFF is pressed. Check in the window.
	Clock display blinks, showing 12:00 a.m.	The power has been interrupted for 5 seconds or more. Reset the clock and the timer settings.
	Cassette cannot be inserted.	● A cassette is already in the compartment. ● The cassette is wrong side up.
	The VTR program is not displayed on the TV screen.	● Connections are incorrect. ● The video channel on the TV receiver is not correctly adjusted. ● TV/VTR is set to TV. (No VTR indicator in the window.)
RECORDING	Recording cannot be made.	● No cassette has been inserted. ● The safety tab has been removed from the cassette. ● The tape is at its end.
	TV recording has not been made correctly.	● The antenna is not correctly connected. ● INPUT SELECT is set to LINE. ● The tape is at its end.
	AUTO indicator lights and the cassette is ejected when ● REC, TIMER REC ON/OFF or QUICK TIMER is pressed.	The safety tab has been removed from the cassette.
	Timer recording has not been made correctly.	● There has been a power interruption. ● The clock time is not set correctly. ● The turn-on and turn-off time have not been set properly. ● The tape is at its end. ● TIMER REC ON/OFF has not been pressed.
PLAYBACK	Streaks or snow on the normal playback picture	A tape recorded on another recorder is being played back. Adjust TRACKING NORMAL until you get the best possible picture. Allow a second or two for the new settings to take effect. When playback of this particular cassette is finished, return the control to its center detent position.
	Noisy picture	The video heads may be contaminated. Clean the heads using the Sony L-25CL video head cleaning cassette. For details on cleaning, refer to the instructions furnished with the cleaning cassette. If the cleaning cassette is not available in your area, have the heads cleaned at the nearest Sony facility.
	Noise band in the slow motion picture, stop-action advance picture, or freeze picture.	● Press TRACKING SLOW to move it.